

Quantafuel As Ord

Recommendation:

Quantafuel is the global leader in plastic recycling. It operates the world's largest recycling plant and partnered with BASF and Vitol to build chemical recycling plants around the globe.

EXPECTED RETURN	TIMEFRAME	POSTED
N/A	2 Years To 5 Years	10/7/2020



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Posted While At: Central European Capital Partners

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About Jan Martinek



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Thesis

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Quantafuel (QFUEL) is USD 0.8 Billion market cap based in Sweden and listed on **Oslo Stock Exchange**. Quantafuel is the game changing company for plastic recycling. It is the only company in the world that is able to recycle plastic into liquids chemically that can be used in new plastic production. The company is **backed by Vitol**, the largest trading company in the World **and BASF (BASFY)**, one of the world's largest chemical companies. **Vitol CEO stated: "We're going to turn it (Quantafuel) into the biggest plastic recycler in the world."** Quantafuel is well-positioned to achieve this mission.

Plastic recycling background

Only 14% of all plastic is recycled now. 32% of plastic ends up in nature. At current progress, there will be more plastic in the sea than fish in not that distant future. The current situation is unsustainable. EU is instigating the change by imposing EURO 800 tax on virgin plastic. That should drive investment in plastic recycling.

There are two types of plastic recycling – mechanical and chemical.

Mechanical plastic recycling is quite difficult and energy-intensive. Plastic first needs to be cleaned, sorted into different kinds of plastic, needs to be separated by color. Only then you can produce pellets that could be useable for further use in mechanical recycling.

Therefore the way forward is the chemical recycling of the plastic. **Mackenzie believes that chemical recycling will become a USD 75 billion revenue industry, with USD 25 billion** in profits within ten years. Major international players are entering the race for chemical recycling of plastic. Those include Neste, Shell, Esso, Veolia. No one has provided any information, that they would have a technology.

Quantafuel technology

Chemical recycling of plastic through the Paralysis of plastic is not unique. Quantafuel has been working on the technology for six years. Paralysis plants are running in Spain or Taiwan. This is not Quantafuel invention. The issue is that all existing plants cannot produce clean oil products that would not include chlorine, sulfur, olefins, and nitrogen. These are not suitable for further use in the value chain. There is no refinery on the planet that could take a vast amount of resources that include chlorine or olefins to produce plastic from them.

Quantafuel technology is unique after the initial Paralysis reactor. Quantafuel built a Miniature Refinery after the heating, so their factory starts where the others stop. Quantafuel purifies the oil by removing chlorine and other impurities such as ash, Sulphur, nitrogen, and so on and process this through the catalysts,

as has been done by large refineries for a century. Hydrocracking itself is nothing new, but Quantafuel is the only one who has designed a catalyst to perform hydrocracking in gaseous form. The gas is purified, we alter the molecular structure and achieve a light, a medium, and a heavy fraction that constitute the recycled raw material for new plastic products.

Quantafuel has been working on its technology for thirteen years. Quantafuel is the only one who is now operating a chemical plastic recycling plant that can produce liquids usable in new plastic production.

From 1000 Kg of plastic, they produce 800 kg of liquids, 100 kg of ash that can be burned as a fuel, and 100 kg of light oil that they use to run the plant.

Strong partners support the investment case

To achieve its mission, **Quantafuel partnered with BASF**, one of the world's largest chemical companies, **and Vitol**, the largest trading company in the world with substantial infrastructure assets. **The strengths and financial backing of those partners land credibility to the Quantafuel investment case.**

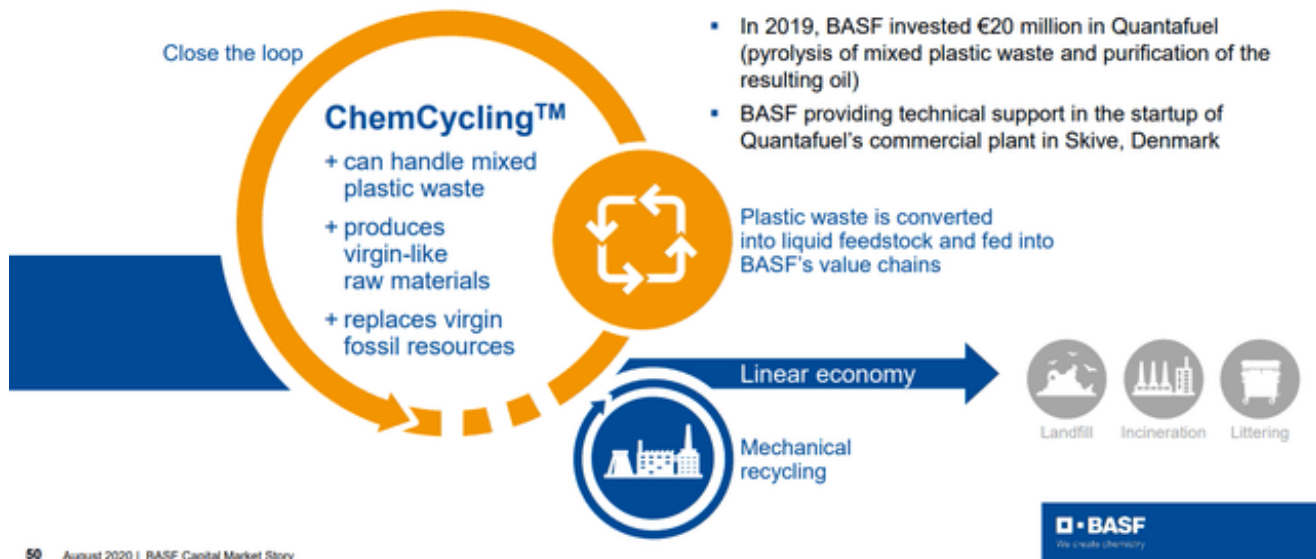
 <i>Shareholder</i>	 <i>Shareholder</i>	 <i>Shareholder</i>
<p>“ We’re going to turn it into the biggest plastic recycler in the world ”</p>	<p>“ The partnership is a first step to build up a broad supply base for Chemcycled products ”</p>	<p>“ Quantafuel has taken an innovative and scalable approach to solving a key problem ”</p>
<p>Russell Hardy CEO Vitol</p>	<p>Hortwig Michels President Petrochemicals BASF</p>	<p>Thomas Lau Schleicher Chief Investment Officer KIRKBI</p>

Source: [Quantafuel Investor Presentation](#)

BASF Partnership

BASF has plastic recycling as one of its major strategic development plans. BASF is the founding member of the [Alliance to End Plastic Waste](#). Quantafuel fits its strategic goals perfectly. **BASF has been working with Quantafuel for years.** In 2018 **BASF entered Quantafuel with EURO 20 million investment.** Both companies consult on design, and BASF provides technical support on the Quantafuel site when the production was starting. BASF and Quantafuel declared that they are planning to build together large plastic recycling plants. Quantafuel is included in BASF investor presentations:

From a linear to a more circular economy – BASF contribution: ChemCycling™



Source: [BASF investor presentation](#)

Vitol Partnership

Vitol, the world's largest independent energy trader, entered into a strategic partnership with Quantafuel in 2018. In the Financial Times interview, Vitol CEO said about Quantafuel: **"We're going to turn it (Quantafuel) into the biggest plastic recycler in the world."**

The process has already started. In September 2020, **Vitol and Quantafuel announced the commencement of feasibility study for large-scale plastic chemical recycling plant.** The timetable of the plant construction is below.

Lego Foundation Partnership

Kirbi, the foundation of the Lego family, invested this year NOK 250 Million. The foundation representative will be nominated to the board of Quantafuel. Their investment indicates that Quantafuel has a backing from strong financial investors as well.

UNIQUE CATALYST SOLUTION AND PLANT DESIGN

KIRKBI invests 250 MNOK

- Ongoing discussions since February
- MoU signed in May
- Common ambition to close the loop on chemical recycling
- Will take up a board seat and work closely with Quantafuel through other collaborations



Source:

Quantafuel August presentation

Skive plant

The first Quantafuel plant is in Skive, Denmark. Quantafuel's Plastic-to-liquid (PtL)

plant is the first of its kind in the world, and the start-up is an important milestone for the company. The factory is presently scaled to process 20,000 tons of mixed plastic waste per year, which would otherwise be incinerated or disposed of in landfills.



Source: Quantafuel August presentation

The test operation started in early September under the supervision of BASF technicians. In mid-September, Quantafuel announced that **they successfully started the operation** of transforming plastic waste into high-quality liquid products. They confirmed that the **main processes for control, operation and safety have been working according to plan, and required standards.** Quantafuel

is now **executing the plan** for a gradual increase of capacity, first on one reactor, and then over the next couple of weeks on several reactors simultaneously.

Based on the existing contracts for raw material and offtake, the 20,000 ton per year plant in **Skive is expected to deliver close to USD 10 million in yearly EBITDA at full production.**

Production expansion

Plant in Denmark is the largest plant in the world, the most advanced and perhaps the only one of its kind. At 20,000 tons per year capacity, it is still very small by industrial standards. For all the Quantafuel partners, it is a prototype plant where they test the new technology. Based on the current plans, Quantafuel plans to start a new plant next year in Kristiansund in Norway, which will also be a test plant, where they plan to test new technology. After that Quantafuel, and its partners will establish its first large scale plants: first in Denmark. Quantafuel, with their partner Vitol, will start working next year on two large scale plants in Antwerp and Amsterdam. In 2023 the first plant in cooperation with BASF should be in operation.

PRODUCTION PLANTS AND PIPELINE PROJECTS

Several additional production plants planned with existing partners



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Source: [Quantafuel Investor Presentation](#)

Recycling can compete with Oil and Gas

Plastic can be chemically processed into oil and gas. The same product refineries are producing. The difference is that refinery needs to pay for its input - crude oil - around USD300 per ton. Quantafuel is being paid now around USD50 - USD80 per ton to take the plastic for recycling. Quantafuel input costs advantage is, therefore, around USD USD350 - USD380 per ton. As the EU introduces the EURO 800 tax virgin plastic tax, the Quantafuel costs advantage may increase further.

CAN RECYCLING COMPETE WITH OIL AND GAS?

Or is big always beautiful?



Raw material: *Income of up to USD 80 per ton*
Process: Fully-automated small scale
Market prices: USD 300-700 premium to commodity prices



Raw material: Cost of USD 300 per ton
Process: Efficient large-scale model
Market prices: Commodity prices

Additional margin: USD 600-1,000 per ton

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Source: [Quantafuel Investor Presentation](#)

Economics of plastic recycling plant

Below summaries economics of 100 thousand tons plant for plastic recycling.

Based on the below such plant would generate USD 50 million EBITDA.

Quantafuel plans to build the plants in 50/50 basis with their partners Vitol and BASF. **Quantafuel should, therefore, generate from each plant EBITDA of 25 million plus 5 million in license fees.**

WHAT IS THE ECONOMICS OF A 100,000 TON PLANT?

Approx USD 100 million CAPEX



VTTI terminal Amsterdam (Vitol sub.)

Process capacity	100,000 ton per year
Products produced	80,000 ton per ton
Estimated market price	USD 1,000 per ton
Revenue per year	USD 80 million
OPEX (direct/indirect)	USD 25 million
Licence fee (to Quantafuel ASA)	USD 5 million
EBITDA per plant	USD 50 million

Indicative and preliminary figures

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Source: [Quantafuel Investor Presentation](#)

Valuation

The share is now covered only by the Scandinavian brokers, which is the base of current Quantafuel shareholders. All brokers are very bullish.



Source: Bloomberg

Quantafuel estimates that each plant will produce EBITDA of USD 50 million. They estimate that they will have a 50% stake in each large plant. In addition, Quantafuel assumes to receive USD5 million in license fees. For simplicity, let's assume that each large plant generates EBITDA of USD30 million for Quantafuel. Pareto Securities believes that each plant increases Quantafuel by 20-30 NOK per share (approximately USD2 -USD3 per share).

BUY/TP NOK 100 – One additional plant adds NOK 20-30/share

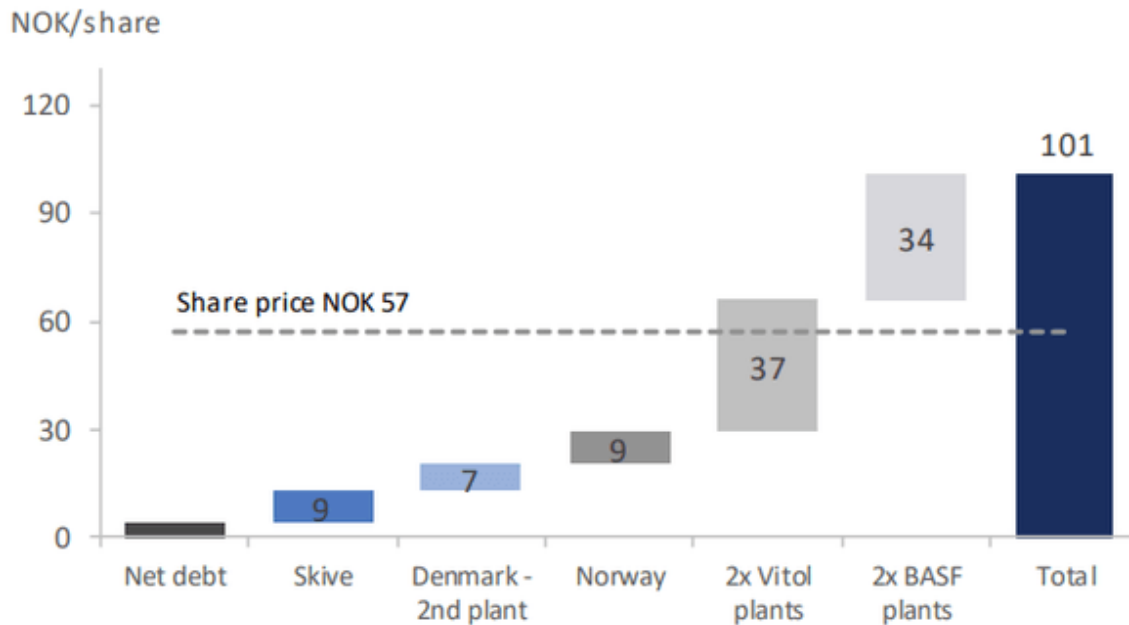
We increase our TP to NOK 100 and reiterate our BUY recommendation on Quantafuel. The target reflects our ~30% risked DCF valuation of the current pipeline and a WACC of 7%. Importantly, we estimate that one additional large-scale plant adds NOK 20-30/share (valuation range depends among other factors upon how much it will be paid to take the plastic) and expect many more (beyond the current pipeline) to be sanctioned upon final prove of the technology. As such, we see substantial upside to our target price as further milestones are achieved while technological risk and operational issues during the ramp up production remains the key risks to our positive view on Quantafuel.

Source: Pareto Research

That would imply that they assume EV/EBITDA multiple of 10-15 (assuming no debt in Quantafuel, which is an oversimplification assumption for the future). Based on this, anybody can do a back of the envelope calculation of Quantafuel valuation. You need to assume how many plants they may have and would be the EV/EBITDA multiple. Or you can just use Pareto estimate of that each plant would add 20-30 NOK per share. The point of this is that the valuation could be many times the current value. As the announcements on new plants would be coming in, the share price will increase. For example, **Fernley Securities in their base case estimate, that Quantafuel with their partners will operate 23 plants by 2030.**

For illustration, I enclose below the description of how Pareto arrived at their 100 NOK price target. Other brokers use a similar methodology.

SOTP – Risked value



Assumes 143 million shares outstanding post an assumed USD 40m equity issue in 2021 to finance future growth and dilution from conversion of all outstanding convertible debt. USD/NOK 10 and a WACC of 7%

Source: Pareto Securities

In summary, the broker consensus one-year share price forecasts is over 100 NOK per share, well above the current 55 NOK. I believe this is a longer play than one year. Quantafuel has everything going for it: unlimited demand for the product, leading technology, first mover advantage, strong partners, unlimited access to capital, and strong government support worldwide. I believe that you can double your money in one year. More importantly, I believe that you can make 5-10 times your money in 3-5 years. Like early investors in Quantafuel did.

Recent share price development

According to the Scandinavian brokers I talk to, there are two main events that

influenced the recent share price moves - the recent issuance of new shares and the rotation from retail to institutional investors.



The share price peaked on 10 September 2020 at around 87 NOK. On that day, Quantafuel started pre-sounding of investors for a private placement. The information must have leaked, and that day the share price went down by more 10% to mid-70s. The next day Quantafuel placed 770 million NOK share placement at 70 NOK per share. The share issue was many times oversubscribed, mainly by institutional investors. The 20% share drop initiated a change of

shareholder composition. Until that moment Quantafuel share price was going only up. Many mainly German retail investors who got into Quantafuel early got scared by the first bigger share price move down and started selling. At the same time, mainly Scandinavian institutional investors started increasing their positions. The rotation caused the volatility that reached 130% (3 months volatility). The situation is still ongoing, retail investors are selling and top five investors are buying. I believe that we will see range trading until the next announcement - materialization of one of the below catalysts, which should help the stock to resume its original trajectory. In summary, I believe this is a good time to enter.

Catalysts

There are several near term catalysts:

1. Confirmation of continues production in Skive on the first production line
2. Full capacity production in Skive on all four lines
3. Information on the construction of their second plant in Sweden
4. Investment Decision on large plants with BASF, Vitol, and others
5. Broadening of research coverage from Scandinavian brokers to major international players

Conclusion

Chemical plastic recycling will become a booming industry over the next

decades. Quantafuel has all it needs to become a market leader in the field. It has the first-mover advantage, it has the technology, and it has strong partners. It is a disruptive technology. Like Google, Facebook, or Amazon has been. Quantafuel has all it takes to repeat their stunning share performance.

Idea Updates

The author has not yet posted any updates for this idea.

Comments

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Visit <https://sumzero.com/pro/research/ideas/19120> and start the discussion.

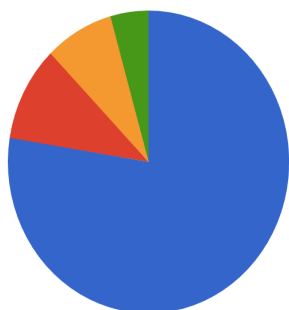
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10,000+

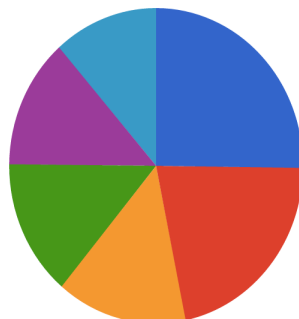
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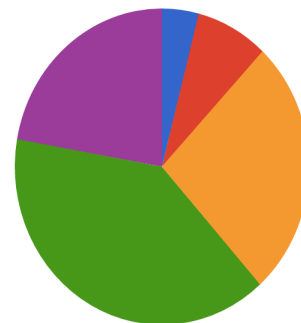
- North America - 77.5%
- Western Europe - 10.2%
- East and South Asia - 7.9%
- Other - 4.4%

MARKET CAP



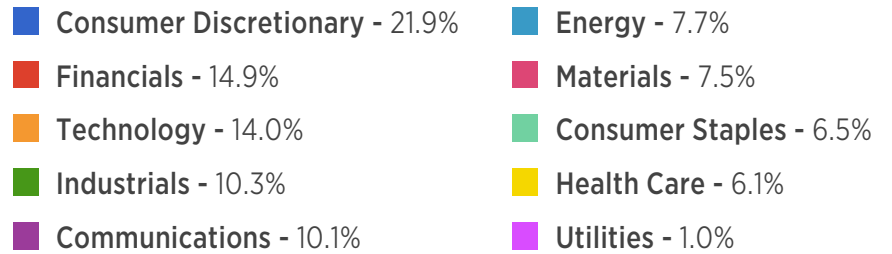
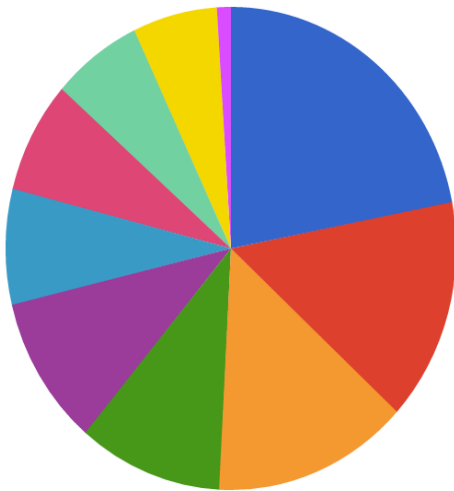
- Small Cap - 25.2%
- Mid Cap - 21.6%
- Mega Cap - 14.4%
- Micro Cap - 14.0%
- Large Cap - 13.4%
- Nano Cap - 11.5%

TIMEFRAME

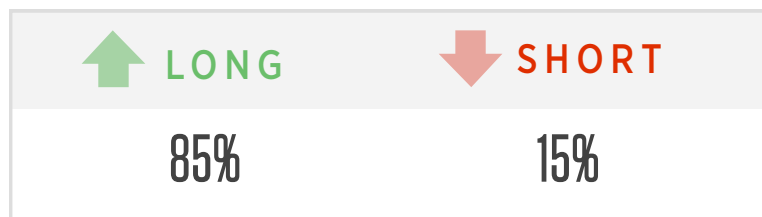


- Less than 3 months - 4.0%
- 3-6 months - 8.0%
- 6 mo. - 1 Year - 26.4%
- 1-2 Years - 39.4%
- 2-5 Years - 22.2%

IDEA BREAKDOWN BY SECTOR



IDEA BREAKDOWN BY DIRECTION



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